



---

[Return to article page](#)

To print: Select File and then Print from your browser's menu.

---

This story was printed from FindArticles.com, located at <http://www.findarticles.com>.

---

**Business Horizons** Sept-Oct, 1998

**Boom time for electronic commerce - rhetoric or reality?**

Author/s: Paul Foley

Some pretty amazing statistics have been put forward on the growth of the Internet and the World Wide Web and their potential for trade. It is nonsense to believe the forecasts that a billion people will be using the Internet by the year 2000, or to give credence to wild predictions that \$200 billion of world trade will be transacted on the Net in 2000. There is no easy way to measure any statistic regarding the growth of the Net, but many firms are becoming concerned about its potential impact on them. An understanding of the factors influencing electronic commerce, or Internet trade, should be central to the development of any strategy to develop applications on the Net or better inform those considering its potential impact on existing businesses.

Many firms developing Internet technology (Microsoft, Netscape Communications), those providing access to the Internet (CompuServe, America Online), and others that sell the technology are thriving. But many businesses using the Internet to promote trade are struggling. The number of losers exceeds the number of moneymakers by at least two or three to one. A little like China, the Internet is a potentially huge market; everyone believes there is money to be made, but so far few have figured out how to do it.

It is not the volume of trade, however, but the nature of trade facilitated by this relatively new medium that should warrant most attention. Most current methods of promoting trade or advertising, such as mailshots, television, and magazine ads, are push media supplying information directly to a potential customer. The Internet is a pull medium in which users generally extract only the information they require. It has become a distribution channel, distributing information and goods and providing unprecedented access for individuals to make better choices when purchasing goods and services.

The Net is said to represent a level playing field posing minimal

entry barriers for businesses seeking new markets and distribution channels. But it is unclear how electronic commerce is cannibalizing existing marketing outlets, or how much trade is the result of expansion in new and existing markets, such as online games or gambling. Even in new markets there is likely to be some capture of resources from other activities (other things being equal) as disposable income is spent on new activities. In existing markets, the Net has the capability to remove the need for an intermediary in most transactions. As buyers purchase directly from producers, the loss of wholesalers, retailers, and other intermediaries could lower transaction costs for the purchaser and enable producers to achieve higher profits by retaining some of the markup previously retained by the intermediaries.

Harrington (1995) defines electronic commerce as the exchange of information, goods, services, and payments by electronic means. The Internet provides a medium for communication. In some cases it can facilitate all the elements of Harrington's definition, but it is equally possible for transactions to be completed using a whole range of communication media, including the Net. A customer could stumble across a page on the World Wide Web while browsing, obtain further information by e-mail, make a telephone call to get detailed technical information by fax, and visit the distribution depot or retailer to collect and pay for the goods. This diversity of uses for the Net in a purchasing decision is a feature rarely addressed in many estimates and forecasts. Thus, the Internet can be but one among many communication channels used in the complex process leading to a purchase decision.

Many firms use their Web sites to supply information on products, prices, and after-sales service, thereby assisting Net users in making a purchase decision. For instance, some PC game companies allow a demo version of software to be downloaded in the hope of encouraging users to purchase the game on CD. Other firms provide details of "local" outlets, anywhere in the world, at which purchasers can obtain their products.

The role of the Net can therefore vary. For this reason and others, predictions about trade using the Net must be treated with extreme caution. It could play a role in "ordinary" purchases, such as the example above, or it could become central to a firm's operations at all stages of the marketing process. By reviewing several forecasts of electronic commerce and investigating the processes involved in making that final online purchase, we hope to aid in understanding the potential for electronic commerce, how key technologies and systems will evolve, and the roles businesses may adopt. As stated before, such an understanding will be critical to the strategies of companies in a wide range of businesses in the future.

#### DEMAND AND THE INTERNET

The potential for electronic commerce, as with all trade, is affected by demand from users and supply by businesses or other

organizations. Demand is affected by three key factors: (1) the number of people using the Internet now and in the future, (2) the characteristics of those users, both individuals and businesses, and (3) their purchasing behavior on the Net - probably the most important of the three. Together, these factors allow an examination of current and future demand for goods and services on the Internet.

Because of the speed of change, our review of demand and supply uses reports from newspapers, trade journals, and World Wide Web pages as well as academic journals. Web pages and commercial sources are published more frequently than academic journals and have shorter lead times. Moreover, they often contain the results of trade and consumer surveys that would otherwise be expensive to purchase. We have also included a guide to leading sources of regularly revised information available about electronic commerce on the World Wide Web (see Figure 1). This guide should allow readers to obtain updates of figures, gain access to information, and review articles about Internet use and electronic commerce. (All monetary figures are in U.S. dollars.)

#### Demand: Internet Connectivity

One of the fundamental factors affecting the potential for electronic commerce is the number of people connected to the Internet. This number is extremely difficult to estimate, however, because of the dispersed nature of users. Studies also provide data in different ways. Some consider the number of hosts, such as Network Wizards' estimate of 29.6 million host computer systems connected to the Net as of January 1998. Some surveys provide information about the number of users, whereas others record the number of households connected. But few distinguish between household (or social) users and commercial users who are accessing the Net from businesses or other organizations. Hence, we advise caution when comparing the results of surveys wherever appropriate full details concerning user characteristics and dates of surveys appear here.

Estimates of Internet connectivity in 1996 range between 24 million and 100 million. Table 1 shows a review of 19 studies published between January 1996 and May 1997. The average number of Net users in 1996 estimated by the 11 worldwide studies is 45 million, but this figure is greatly affected by two high values. It must be remembered that these figures are little more than guesses.

In one Wired study that collected data from online providers about their subscription levels ("Growth Slowing..." 1997), 51 online services reported 27.6 million subscribers at the end of March 1997. But subscribers may provide access to more than one individual, and millions more business users are located behind firewalls.

Any review of Internet connectivity should not be constrained by examining only household data. Businesses are major users of computers. A survey by O'Reilly and Associates (Peck 1996) found

that in the U.S. and Canada, 51 percent of the largest firms surveyed (those with more than 1,000 employees) have corporate access to the Net, compared to 27 percent of mid-sized firms (100 to 999 employees) and fewer than 10 percent of small firms. In the UK, a more recent survey by Durlacher Multimedia in 1997 found that 85 percent of large UK corporations have an Internet connection. In most firms, however, access is limited to a small percentage of staff.

In a spring 1997 survey by the Graphics, Visualization, and Usability Center (GVU) at Georgia Institute of Technology, 60 percent of users reportedly accessed the Web mainly from home - a number that was believed to be stabilizing. An Inteco household survey the previous September also found a leveling off in home access. Future growth in the U.S. was expected to come primarily from a continuing trend of increased access from work or school.

Forecasts of the growth in connectivity show an equally diverse array of values, ranging from 90 million to a billion users in 2000. Estimates at the upper level must be regarded skeptically. They would require a phenomenal increase in the adoption of "old" technology, let alone the purchase of computers and modems. Even in the developed world, only about half the population - roughly 400 million people - have a telephone at home. In the developing world, the number is only about 4 percent. If one makes the bullish prediction that all the world's households with telephones (about 600 million) will be using the Net at the same 30 percent level predicted for the U.S. in 2000, the maximum level of worldwide household connectivity would be 180 million.

Predictions of future growth in the United States are obviously no more reliable than others. Forecasts generally predict between 25 and 35 million U.S. users in 2000, with a growth rate of about 50 percent between 1996 and 2000. These forecasts appear more modest than those put forward by prophets making guesses at the world scale, which envisage growth of at least 300 percent during the same time.

Some commentators have suggested there may be a ceiling of 25 to 30 percent of American households (24 to 28 million) connecting to the Internet. According to Coy (1996a), a survey by Mercer Management Consulting found that two-thirds of the market for electronic commerce in the United States was made up of two demographic groups comprising only 17 percent of the population. Surveyors found limited potential for electronic commerce beyond these two relatively affluent groups - the "wired elite" and "upgrade families."

Table 2

Demand for and Supply of Information on the

Internet

DEMAND

SUPPLY

Internet

Host      Online Newspaper

Country/Region

Location

Provision

United States	64%
55%	
Other English-speaking countries	13%
9%(1)	
Europe	
18%(2)	22%
Asia(3)	4%
5%	
Africa/Middle East	1%
1%	
Central and South America	1%
7%	

1 Canada, Australia, and New Zealand

2 Excluding UK and Ireland

3 Excluding Australia and New Zealand

Note: Figures are rounded, so columns do not total 100.

Source: Mandel (1996) and Outing (1996)

Predictions of a more moderate growth pattern in the United States suggest a slowdown in the number of new users. Recent evidence indicates this trend may already be happening. Subscriptions to online service providers America Online (AOL) and CompuServe increased by just 6.6 percent in the first quarter of 1997, compared with quarterly growth of 15.3 percent a year earlier. Supporting evidence for slower growth is provided by GVV's most recent semiannual survey, which found the number of new users in its survey had fallen from 60 percent in 1995 to 36 percent in 1996 and 1997. A steady resurgence in Net users will probably occur in the future as students and schoolchildren using it for educational purposes maintain access after graduation by connecting from home or the workplace.

The United States is generally regarded as the earliest adopter of

Internet technology. Mandel (1996) states that nearly two-thirds of Net host computers are located here. Table 2 provides a good indication of the geographical distribution in 1996 of the potential "demand" for information (or goods and services) from the Net, using host computers as a surrogate for the geographical distribution of demand. Outing's (1996) survey of online newspaper provision serves as a surrogate for the geographical distribution of information provision, enabling a tentative examination of the "supply" of information.

Table 2 also shows the predominance of English-speaking countries in connecting to the Net. Asia's surprisingly poor position, considering it has 59 percent of the world's population, is explained by three factors: (1) the relatively low level of home PC ownership in Japan less than 15 percent; (2) the Chinese government's concern about the Internet as a source of politically sensitive information; and (3) the relative poverty of many Asian countries. Asia, like many other non-English speaking areas, is also hampered by the fact that nearly all Web pages are written in English. Programs may be developed in the future that will automatically translate e-mail and Web pages, but in the meantime, interest in the Web for non-English speaking users is limited.

#### Internet User Characteristics

Net users have been characterized as predominantly young, well-educated, professional, and affluent males. However, recent surveys suggest that people using the Net are becoming more representative of the population as a whole. The United States again appears to be leading this trend. Online surveys reveal that the proportion of female users in the U.S. has risen from 5 percent in 1994 to approximately one-third in 1996. Other surveys found the proportion had risen to 40 percent or more. In Britain, where the market is starting to mature, the percentage of female users reached 35 percent in 1997, according to NOP Research (1997). Elsewhere, male predominance is still the rule: 85 percent in Europe and Australia, and 90 percent in Japan.

Net users are mostly young, but the average age is also increasing. In spring 1997, GVU found an average age of 35.2 compared with 33 a year earlier. European users are generally younger than U.S. respondents (30.2 and 36.5 years old, respectively). Users also appear to be more affluent than the general population. Whereas average American household income in 1995 was \$42,400, Net-using households had an average income of \$66,700. Diamond (1997) suggests that average had fallen to \$55,000 in 1997. A higher proportion of those with managerial and professional jobs are Net users. Compared to the U.S. as a whole, which had 34 percent in this category in 1994, 59 percent of users in 1994 held such jobs. This had decreased to 50 percent in 1995 and 39 percent in 1997, reports Chandrasekaran (1997).

The relative stability in user characteristics in the United States -

who are slightly younger and more affluent than the general population, with a greater predominance of males - should provide greater confidence and stability for Internet traders. This situation is likely to be replicated in other countries as their Net population expands and matures.

#### INTERNET PURCHASING BEHAVIOR: DO PEOPLE USE ELECTRONIC COMMERCE?

The last, but probably most important, of the three factors influencing the demand for electronic trade is how users and purchasers behave on the Internet. Most users browse rather than purchase. The most common Web activities among general users, according to one GVI survey, are browsing (61 percent), work (54 percent), education (52 percent), and entertainment (46 percent). Among those using it for business purposes, reports Inc. ("What Are You Doing on the Web?" 1996), the primary activities tend to be gathering information (77 percent), collaborating with others (54 percent) providing vendor support and communications (50 percent), and researching competitors (46 percent).

Purchasing goods and services through the Net ranked last in both surveys. However, as a communication tool, the Net could be influential in the purchasing decision for an increasing number of users who complete their purchases using other methods of communication as well.

The semiannual GVI surveys had been showing a steady increase in consumer purchasing, but as of fall 1997 a slight decrease was recorded for the first time. This drop to 18.7 percent of respondents from 18.8 percent six months earlier was still higher than the 14.9 percent recorded a year earlier by Toon (1996). In contrast to Chandrasekaran's report that 15 percent of responding Net users had purchased something online, a similar household survey of 2,003 adult respondents by AT&T and Odyssey and reported by Computerworld in 1997 found a much lower level of purchasing behavior - only 7 percent had bought anything online and only 20 percent had sought information about a product or service.

How much did users spend on purchases on the Web in 1996? Between spring and fall, reports GVI, 36 percent spent less than \$10, whereas 20 percent spent between \$10 and \$99 and 29.5 percent spent over \$100 through the Web. The key advantages of purchasing via the Web are ease of contact, lower prices, easy ordering, and quality of information. Security of financial transactions has been a major concern, but this problem seems to be diminishing. Other concerns are ease of obtaining a refund, reliability, and the ease of canceling orders. Web users, it seems, still prefer traditional vendors over Web vendors.

There is evidence that growth in spending over the Web will not increase at a concomitant rate with the growth in new users. Latecomers to the Web are not as likely to shop at the same rate as

early adopters. CompuServe's membership grew by 60 percent in 1996, but its online sales stayed relatively static. The decline in growth in purchasing behavior indicates that relative stability may already have been reached.

### What Do People Buy?

The characterization of early Web users as young professional men who are educated and technically knowledgeable is also the demographic profile of typical purchasers of CDs, adult entertainment, computer software, and other "boys' toys." Some goods are being bought much more frequently than others on the Web. Computer hardware and software, books, music, adult entertainment, and travel are consistently reported as the main items purchased. In 1994, Shi and Salesky suggested some key characteristics for merchandise purchased online:

- \* items for which product information is an important part of the purchase decision, but for which pre-purchase trial is not critical (such as computers, but not cars);
- \* items for which audio or video demonstrations are useful (CDs, videos);
- \* items that can be delivered electronically (computer software);
- \* items that are unique (collectibles, specialty foods); and
- \* items purchased regularly where convenience is valued (packaged goods).

The passage of time has proven three of these predictions accurate, but the last two have generally not been as useful, as shown in Table 3.

By concentrating on the characteristics of merchandise, Shi and Salesky's approach ignored two other important factors: services and the purchase process. More recent studies have highlighted the growth of services offered on the Web, particularly financial and insurance services. And in considering the process of undertaking electronic commerce, two additional characteristics make online purchasing attractive:

- \* ease and privacy of transaction (adult entertainment, gambling, sending flowers); and
- \* availability of information about price for products that are standard comparison items, particularly entertainment goods, such as CDs and videos.

Although none of the surveys in Table 3 recorded the importance of adult entertainment or gambling, anecdotal evidence about the most



frequently read pages on the Web suggests they are significant. The sexual nature of the most oft-used words in searches at such online navigational guides as Yahoo suggest that "privacy" of transactions is important. Given the size of the adult entertainment market, this could be a prime area for electronic commerce. According to Sharkey (1997), U.S. News and World Report suggested that the American market was worth more than \$8 billion in 1996.

Price has always been an important feature in making a purchase decision. It is no surprise, then, that some of the most popular electronic commerce sites are those offering far lower prices than High Street competitors for standard comparison items, such as CDs, videos, and books. The introduction of "intelligent agents," which engage in comparison shopping between Internet stores to find the best price for a particular [TABULAR DATA FOR TABLE 3 OMITTED] product, will exacerbate the importance of price and ease the purchaser's task of finding the cheapest product for some standard comparison goods. Already there are sophisticated Web sites that enable potential purchasers to buy any book or CD at the cheapest available price from a selection of worldwide electronic commerce suppliers.

A fundamental assumption of retailers in the real world and on the Internet is that shops that provide better services will retain customers and, hence, should be able to charge higher prices. Intelligent agents, however, have the potential to overturn this long-held belief by providing instant access to information on the cheapest provider anywhere in the world. Of course, this will only work for standard goods or services (CDs, books, airline flights, life insurance) that are easily defined and compared.

The most popular items purchased by electronic commerce are computer hardware and software, books and magazines, travel, and CDs. Not only are they the most competitive items on the Net, they also constitute the area in which competition with conventional retailers is likely to be most intense. Banking, insurance, and other services and products that make more use of the ease and privacy offered by electronic commerce will likely grow in significance.

Two seemingly conflicting trends for intermediaries will also arise. First, the Net has the capability of eliminating the need for wholesalers, retailers, and other intermediaries in many transactions as buyers purchase directly from producers. Electronic commerce lowers transaction costs for the purchaser and enables producers to achieve higher profits by retaining some of the markup previously retained by intermediaries. Second, the role of one or two leading intermediaries could be enhanced if they offer an intelligent agent service that aggregates price and other product information on standard comparison goods, thereby enabling purchasers to quickly find the cheapest supplier of what they seek.

For products and services that can be compared this way, electronic commerce may erode the nature of the trading process by usurping

the role of retailers and agents or brokers (particularly in financial services). It could also destroy the importance of the traditional marketing concept of building customer relationships by transforming the way people shop.

#### How Much Do People Buy?

Predictions of the level of electronic commerce undertaken via the Internet are even more difficult than those for Net connectivity. Sales information is sensitive, particularly for businesses that trade only via the Net. Any estimates for the current volume of sales is therefore highly speculative. Table 4 reviews 12 studies published between January 1996 and March 1997. The average level of trade in these studies is \$1.08 billion; if the large Waltner estimate is omitted (which also predicts sales of \$13.4 billion for 1997), the average value is approximately \$840 million.

Only three of the studies in Table 4 make predictions for 2000 on the basis of figures revealed for 1996. They predict growth of 550, 1,270 and 1,320 percent, respectively, between 1996 and 2000. If the level of commerce in the widely quoted Forrester estimate of \$6.6 billion in 2000 were achieved, it would equate to Net purchases of approximately \$37 per year by every one of the 180 million households worldwide that might be connected to the World Wide Web in 2000. Because newcomers are unlikely to purchase at the same rate as established users, this high level seems unrealistic. In comparison, the two largest "big book" general merchandise marketers in the United States had total catalog sales of \$5.5 billion in 1995: JCPenney at \$3.7 billion and Spiegel at \$1.75 billion.

#### SUPPLY: ELECTRONIC COMMERCE AND INFORMATION, GOODS, AND SERVICES

Established businesses are beginning to capitalize on the perceived economic benefits and marketing reach of electronic commerce. Many are supplying information, goods, and services using the Internet. Some banks are starting to move their customer services to electronic channels. Retailers are moving online, and new intermediaries are emerging.

The simplest measure of the "supply" of information for electronic commerce is to count the number of sites or pages on the World Wide Web. Between January and December 1994, the number of Web sites rose from 623 to 10,022, whereas the number of commercial pages was estimated to be only 370. By December 1996, the total number of sites had increased to 603,000, the number of commercial sites was estimated to be 45,000, and the number of commercial pages was believed to have grown to 250,000. However, estimates suggest that 25 to 30 percent of Web pages die each year. The electronic commerce market, like the real world, is comprised of a steady influx of new businesses and the

closing of dead ones.

[TABULAR DATA FOR TABLE 4 OMITTED]

The Internet provides an unprecedented supply of information for individuals to make better choices about products and services. But to obtain that information, potential purchasers have to find the sources. Indexes have become a vital tool in enabling users to find what they want to know. Knowledge organization is important, not just because of how much information is now available, but because of the growing number of users seeking it. The total number of pages on the Web in 1996 was estimated to be 11 million, with perhaps 300,000 extra pages added every seven days. That number is now thought to be growing faster than the number of users.

Numerous examples are quoted in the popular press and trade journals of successful Internet businesses, such as Amazon books, CDNow, Hot Hot Hot, and Dell Computer. Despite these and other well-known successes, surveys still suggest that fewer than one in two or three sites are profitable. For something that many heralded as the next "gold rush," results so far are disappointing. The list of well-known but less-publicized failures includes MCI's Internet Shopping Mall, Time Warner's Pathfinder and Dreamshop, and Webmart Shopping 2000. Even for some of the successes, revenues appear to be low. Some successful catalog sales companies, which many thought would be at the forefront of developing the new technology, report that online sales amount to only a small portion of total revenue.

Some commentators have suggested that technology accounts for the relatively slow level of growth. As soon as it is possible to sit down in front of a television set and shop with fast image presentation and a remote control, they say, everything will change. However, three months after a well-publicized launch just before Christmas 1996, fewer than 70,000 Web TV devices had been sold in the United States. Xu (1997) estimates that the number of Web-enabled television sets will still be under a million in 1999. Web TV will differ from TV home shopping in a number of ways; nevertheless, the slow growth of home shopping and the move by ValueVision International, a leading home shopping network, into the mail order industry suggest that current television sales levels are limited.

Many of those developing Internet technology or providing access to it have a strong vested interest in the real or perceived expansion of electronic commerce. Consultants, journalists, and perhaps even academics have equally pressing reasons to ensure the popularity of this relatively new method of communication. The number of people connected to the Net has certainly skyrocketed in recent years. But in the United States, the evidence of a slowdown in the number of new users and a relative decline in the number of purchases they make likely heralds the same thing worldwide in the very near

future.

Outrageous claims forecasting the impact of the Net, the WWW, and electronic commerce on our lives over the next five years are, as we have shown, unrealistic and misleading. Perhaps the Net will become the next management fad. Most fads put forward by gurus in recent years, such as TQM and reengineering, had an internal focus. And companies really only have two main choices when improving their business-reducing costs or increasing throughput. So it was only a matter of time before they embraced a fad with an external focus, such as the Net.

Undoubtedly the Internet has had a significant commercial impact since 1993. And in some industries particularly suited to electronic commerce - computer software and hardware, CDs, books, financial services - this influence will grow. But businesses must be very careful before staking their all on the stratospheric claims put forward for its role in the growth of electronic commerce over the next few years.

Figure 1

Guide to Leading Sources of Regularly Revised Information on Electronic Commerce and the WWW

Listed below is a selective review of sites on the World Wide Web that provide regularly updated reviews of Internet surveys, statistics, and reports. Dynamic links to these pages can be found on the authors' home pages:

<http://www.dmu.ac.uk/ln/ecommerce>

<http://business.city.unisa.edu.au/wwwtrade/internetstatistics.html>

#### INTERNET USER SURVEYS

GVU Georgia Tech User surveys: Online surveys completed

by approximately 20,000 respondents twice yearly (since January 1994) investigating Internet demographics and use.

\* [http://www.cc.gatech.edu/user\\_surveys](http://www.cc.gatech.edu/user_surveys)

Hobbes Internet Timeline: History of the Internet from 1957 and updated statistics on hosts, domains, and WWW sites.

\* <http://info.isoc.org/zakon/internet/History/HIT.html>

Network Wizards: Host and domain surveys completed twice yearly (since January 1995) providing details of user type and geographical distribution.

\* <http://www.nw.com/zone/www/top.html>

General Magic: Graphical presentation of past and future growth in Internet host and domain characteristics.

\* <http://www.genmagic.com/internet/trends>

Netcraft Web server surveys: Monthly survey of sites and Web server Software usage.

\* <http://www.netcraft.com/survey>

#### INTERNET SURVEY REVIEWS

NUA Ltd. Internet surveys database: Reviews of published Internet surveys and use from sources throughout the world; updated daily.

\* <http://www.nua.ie/surveys/index.cgi>

Computerworld Internet reviews: A selective presentation of key statistics from recent surveys of Web sites on growth, business activity, and purchasing behavior; not user-friendly.

\* <http://www.computerworld.com/emmerce/depts/stats>

#### LINKS TO INTERNET SURVEYS AND STATISTICS

InfoQuest/Internet Surveys and Statistics

\* <http://www.teleport.com/~tbchad/stats1.html>

Yahoo Internet Statistics and Demographics

\*

[http://www.yahoo.com/computers\\_and\\_internet/internet/statistics\\_and\\_demographics](http://www.yahoo.com/computers_and_internet/internet/statistics_and_demographics)

Library of Congress Internet Resource Page

\* <http://lcweb.loc.gov/global/internet/inet-stats.html>

Brand X Internet Services

\* <http://www.interlog.com/~bxi/stze.htm>

#### MISCELLANEOUS

Matthew Gray Terminology: Clear definitions and terminology for commonly used terms such as host, domain, site, etc. Also includes Internet growth data.

\* <http://www.mit.edu/people/mkgray/net>

Anamorph Irresponsible Internet Statistics Generator: Questions Internet statistics

wittily, with some links to other sites.

\* <http://www.anamorph.com/docs/stats/stats.html>

\* Editor's note: Check out the July-August 1998 issue of BH, in which Varun Grover, Liz Hall, and Scott Rosenberg discuss this topic in their article, "The Web of Privacy: Business in the Information Age."

\* Editor's note: Ramon Peypoch delves further into the topic of electronic communities in the following article (p. 17).

#### References

Activmedia Incorporated, "Real Numbers Behind Net Profits," report reviewed by NUA Internet surveys, June 20, 1997 (<http://www.nua.ie/surveys/>)

B. Aoun, "Agent Technology in Electronic Commerce and Information Retrieval on the Internet," Proceedings of AusWeb96, Gold Coast, Australia, July 7-9, 1996.

Australian online survey highlights, 1997 (<http://www.consultco.com.au/highlights.html>)

D. Bogle, "How to Make a Net Profit" (Focus), The Weekend Australian, March 15, 1997, p. 24.

R. Chandrasekaran, "Internet Use More Than Doubles," Guardian Weekly, March 23, 1997, p. 19.

K. Cleland, "On-line Research Costs About Half That of Traditional Methods," Catalog Age, May 1996, p. B8.

M. Cowley, "Still Naughty But Getting Nicer," The Web, November 1997, pp. 40-41.

P. Coy, "Has the Net Finally Reached the Wall?" Business Week (Asian ed.), August 26, 1996(a), pp. 14-17.

P. Coy, "Limo Service for Cruising the Net," Business Week (Asian ed.), June 24, 1996(b), p. 32.

S. Creedy, "Bonanza for Businesses on the Internet, Says IDC," The Australian, March 25, 1997, p. 39.

D. Cyr, "Web Winners and Losers Strive to Make Sense of Selling on the Internet," Catalog Age, October 1996, pp. 31-67.

R. Deger, "Zona Predicts \$100 Billion in Net Business by 2000," PC-Week Online, March 21, 1997.

J. Deighton, "The Future of Interactive Marketing," Harvard Business Review, November-December 1996, pp. 151-160.

D. Diamond, "The Web's Salon," PCWeek Online, March 17, 1997.

"Distributors Rush to the Web," Purchasing, January 11, 1996, p. 128.

M.L. DuBrow, "Exploring the Internet for Economic Development Opportunities," Economic Development Review, Summer 1995, pp. 89-94.

Durlacher Multimedia, "UK Internet Growth," report reviewed by NUA Internet surveys, April 24, 1997, (<http://www.nua.ie/surveys/>)

D. Eccles and R. Palmer, "<http://www.future.com.au>," Eastern Courier (Adelaide), March 19, 1997, p. 9.

P. Foley, "Aggregation and Domination on the Internet? A Review of Intelligent Agents and Electronic Commerce," De Montfort University Electronic Commerce Research Centre, Working Paper 4, 1998.

P. Foley and D. Sutton, "The Potential for Trade Facilitated by the Internet 1996-2000: A Review of Demand, Supply and the Kierzkowski Model of Products and Services Suitable for Internet Trade," paper presented at 31st International Conference on Systems Sciences, Hawaii, January 7, 1998.

S. Friedman, "Agents Should Capitalize on Web's Opportunities," National Underwriter, May 13, 1996, p. 12.

"From TV to Mailboxes," Catalog Age, Feb. 1997, p. 14.

U.E. Gattiker, L. Janz, and M. Schollmeyer, "Internet Access: Managing Costs and Benefits," Business Quarterly, Autumn 1996, pp. 85-92.

Global Internet Project, "Commerce by Numbers," Web growth report reviewed by Computerworld(<http://www.computerworld.com/emmerce/>); accessed ca. November 28, 1997.

E. Goldratt, "Focusing on Constraints, Not Costs," in R. Gibson (ed.), Rethinking the Future (London: Nicholas Brealey, 1997): 106-121.

M. Gray, "Web Sites, Hostnames, and IP Addresses, Oh My!" 1996 (<http://www.mit.edu/people/mkgray/net/terminology.html>).

"Growth Slowing for On-Line Subscriptions," Wired News Top Stories, PointCast Network, May 20, 1997.

GVU, "7th WWW User Survey," April-May 1997  
([http://www.cc.gatech.edu/gvu/user\\_surveys/survey-1997-04/](http://www.cc.gatech.edu/gvu/user_surveys/survey-1997-04/))

GVU, "8th WWW User Survey," October-November 1997  
([http://www.gvu.gatech.edu/user\\_surveys/survey-1997-10/](http://www.gvu.gatech.edu/user_surveys/survey-1997-10/))

G. Hamel, "Reinventing the Basis for Competition," in R. Gibson (ed.), *Rethinking the Future* (London: Nicholas Brealey, 1997): 76-92.

A. Hamilton, "What Makes Women Click?" Jupiter Communications report reviewed by ZDNet, October 6, 1997  
([http://www.zdnet.com/anchordesk/story/story\\_1323.html](http://www.zdnet.com/anchordesk/story/story_1323.html))

L. Harrington, "Early Perspectives on Electronic Commerce," *McKinsey Quarterly*, 3 (1995): 193-195.

J. Hodges, "Web Won't Ring With Gift Shopping," *Advertising Age*, December 2, 1996, p. 53.

D.L Hoffman and T.P. Novak, "You Can't Sell If You Don't Have a Market You Can Count On," *Harvard Business Review*, November-December 1996, p. 161.

Inteco, "Work Displaces Home," December 22, 1996, report reviewed by NUA.

Internet surveys, <http://www.nua.ie/surveys/>

Intelliquest, On-line purchase survey report reviewed by Computerworld  
(<http://www.computerworld.com/emmerce/depts/stats/bus.html>); accessed ca. November 28, 1997.

IDC (International Data Corp.), Internet user survey in conjunction with Tokyo University report reviewed by NUA Internet surveys, 1997 ([http://www.nua.ie/surveys/reports/july\\_august.html](http://www.nua.ie/surveys/reports/july_august.html))

IDC, Commercial site survey report reviewed by NUA Internet surveys, March 12, 1997 (<http://www.nua.ie/surveys/>)

IDC, Commercial site survey report reviewed by Computerworld (<http://www.computerworld.com/emmerce/>); accessed ca. November 28, 1997.

P. Judge, "From Computers to Croissants," *Business Week* (Asian ed.), February 10, 1996, pp. 56A2-56A3.

A. Kambil, "Electronic Commerce: Implications of the Internet for Business Practice and Strategy," *Business Economics*, 3 (1995): 5-



21.

S. Katha, "Competing on the Internet: The Case of Amazon.com," *European Management Journal*, 16, 2 (1998): 212-222.

S. Duglin Kennedy, "The Internet Changes the Way We Live," *Information Today*, September 1996, pp. 48-49.

A. Kierzkowski, S. McQuade, R. Waltman, and M. Zeisser, "Marketing to the Digital Customer," *McKinsey Quarterly*, 2 (1996): 180-183.

K. Kiley, "The Last of the Big Books," *Catalog Age*, November 1996, pp. 1, 66.

M. Levin, "A Corporate Web Site Is Different From a Marketing Web Site," *Harvard Business Review*, November-December 1996, pp. 154-156.

M.J. Mandel, "A World Wide Web for tout le monde," *Business Week* (Asian ed.), April 1, 1996, p. 32.

Network Wizards, Internet domain survey, Number of hosts and domains advertised in the DNS, July 1997

(<http://www.nw.com/zone/www/report.html>)

NOP Research Group, Internet user profile study, report reviewed by NUA Internet surveys, April 16, 1997 (<http://www.nua.ie/surveys/>; also available at <http://www.nopres.co.uk>)

S. Outing, "Internet Brings Competition Galore," *Editor and Publisher*, September 7, 1996, pp. 101-121.

R. Peck, "Conducting Business on the Web Malls," 1996 ([http://www.ora.com.www/research/netcraft/exec\\_sum\\_inet.html](http://www.ora.com.www/research/netcraft/exec_sum_inet.html))

J.A. Quelch and L.R. Klein, "The Internet and International Marketing," *Sloan Management Review*, Spring 1996, pp. 60-75.

J. Rasmussen, "The Internet: The Swiss Army Knife of Business Tools," *CMA Magazine*, March 1996, pp. 11-14.

K. Rebello, "Making Money on the Net," *Business Week*, September 23, 1996(a), p. 104.

K. Rebello, "Inside Microsoft," *Business Week* (International ed.) July 15, 1996(b), p. 56.

"Report of a Survey of 2,003 U.S. Adults' Internet Behavior Undertaken by AT&T and Odyssey," *Computerworld* (<http://www.computerworld.com/emmerce/depts/stats/pop.html>);

accessed ca. November 28, 1997.

R. Reynolds, "Looking to Sell Your Products On-Line," Black Enterprise, February 1996, p. 38.

S. Rupley, "The Net, Circa 2000," PCMagazine Online, March 12, 1997.

L. Skinner, "Web Site Developers: Internet Will Be Essential for Business," Marketing News, January 15, 1996, p. 9.

C. Smith Shi and A.M. Salesky, "Building a Strategy for Electronic Home Shopping," McKinsey Quarterly, 4 (1994): pp. 77-95.

Stevens Systems, "User Demographics" ([http://www.warehouse.net/stevens\\_systems/userDemo.html](http://www.warehouse.net/stevens_systems/userDemo.html)); accessed March 25, 1997.

J. Toon, "Growth in World Wide Web May Be Slowing," GVU Survey Press Release, October-November 1996 ([http://www.cc.gatech.edu/gvu/user\\_surveys/papers/9610-release.html](http://www.cc.gatech.edu/gvu/user_surveys/papers/9610-release.html)).

United Nations, World Economic and Social Survey (New York: UN, 1996): Table A1.

"Virtual Malls," 1997 ([http://www.lycos.com/reviews/database/shvm\\_e.html](http://www.lycos.com/reviews/database/shvm_e.html))

S. Vonder Haar, "Hold On: Web Sites Won't Turn a Profit Until 2000," Inter@ctive Week, June 17, 1996.

S. Waldman, "Netpreneurs" (Syte), The Weekend Australian, March 29, 1997, pp. 1-6.

C. Waltner, "Study: B-to-B Web Sales to Explode to \$13.4B," Advertising Age's Business Marketing, October 1996, pp. 3-4.

F.E. Webster, "The Interactive Marketplace," Harvard Business Review, November-December 1996, pp. 156-157.

"What Are You Doing on the Web?" Inc., June 1996, p. 124.

S. Xu, "Gates Goes for an Idiot Box with Brains" (Syte), The Weekend Australian, May 10, 1997, p. 3.

B.G. Yovovich, "Web Change Unprecedented," Business Marketing, September 1996, p. 2.

R.H. Zakon, "Hobbes' Internet Timeline," v3.1, 1997

(<http://info.isoc.org/zakon/internet/history/HIT.html>)

K. Zhivago, "Ways to Make Sure Web Leads to Profits," Business Marketing, September 1996, p. 24.

Paul Foley is a professor of business development in the Leicester Business School at De Montfort University, Leicester, England. David Sutton is a senior lecturer in information systems at the University of South Australia in Adelaide, where Professor Foley was a visiting professor during the 1997 academic year.

---

COPYRIGHT 1998 Elsevier Science Publishers Ltd.  
in association with The Gale Group and LookSmart. COPYRIGHT  
2000 Gale Group

---